

What is claimed is:

1. A diagnostic specimen container comprising a biomedical specimen collection vessel and a wireless electronic memory tag for non-contact storage and retrieval of information.

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2. A diagnostic specimen container as claimed in claim 1 wherein the electronic memory tag includes a radio frequency transponder.

10 3. A diagnostic specimen container as claimed in claim 1 wherein the electronic memory tag contains stored data including an identification code for the container.

4. A diagnostic specimen container as claimed in claim 3 further including a label imprinted with an identifying bar code.

15 5. A diagnostic specimen container as claimed in claim 1 wherein the electronic memory tag contains stored data including the identity of the supplier of the container and product information about the container.

20 6. A diagnostic specimen container as claimed in claim 1 wherein the electronic memory tag contains stored data including identifying information about a specimen contained in the vessel and about the specimen donor.

25 7. A diagnostic specimen container as claimed in claim 6 wherein the electronic memory tag contains stored data further including definition of the analytical tests to be performed on the specimen in the vessel.

8. A diagnostic specimen container comprising:

a collection vessel and a wireless electronic memory tag including a radio frequency transponder for non-contact storage and retrieval of information;

data stored on the electronic memory tag including an identification code for the

5 container, the identity of the supplier of the container and product information about the container, identifying information about a specimen contained in the vessel and about the specimen donor, and definition of the analytical tests to be performed on the specimen in the vessel; and

a label imprinted with an identifying bar code.

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9. A toxicology specimen container comprising a collection vessel configured to receive and contain a toxicology specimen and a wireless electronic memory tag for non-contact storage and retrieval of information.

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10. A toxicology specimen container as claimed in claim 9 wherein the electronic memory tag includes a radio frequency transponder.

11. A toxicology specimen container as claimed in claim 9 wherein the electronic memory tag contains stored data including an identification code for the container.

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12. A toxicology specimen container as claimed in claim 11 further including a label imprinted with an identifying bar code.

13. A toxicology specimen container as claimed in claim 9 wherein the electronic memory tag contains stored data including the identity of the supplier of the container and product information about the container.

5 14. A toxicology specimen container as claimed in claim 9 wherein the electronic memory tag contains stored data including identifying information about a specimen contained in the vessel and about the specimen donor.

10 15. A toxicology specimen container as claimed in claim 14 wherein the electronic memory tag contains stored data further including definition of the analytical tests to be performed on the specimen in the vessel.

15 16. A toxicology specimen container as claimed in claim 9 wherein the electronic memory tag contains stored data including an encoded electronic signature of the donor of a toxicology specimen.

17. A toxicology specimen container comprising:  
a biomedical specimen collection vessel and a wireless electronic memory tag  
including a radio frequency transponder for non-contact storage and retrieval of information;

20 data stored on the electronic memory tag including an identification code for the container, the identity of the supplier of the container and product information about the container, identifying information about a specimen contained in the vessel and about the specimen donor, definition of the analytical tests to be performed on the specimen in the vessel, and an encoded electronic signature of the donor of the toxicology specimen in the  
25 vessel; and

a label imprinted with an identifying bar code.

18. A method for electronically storing information on a diagnostic or toxicology specimen container and remotely reading information from the container comprising:

5       providing a biomedical specimen container having a wireless electronic memory tag;  
      electronically storing data on the electronic memory tag; and  
      reading the stored information from the electronic memory tag with a non-contact  
electronic reader or scanner.

10       19. A method for recording information about a diagnostic or toxicology specimen on  
a diagnostic or toxicology specimen container comprising:

      providing a biomedical specimen container having a wireless electronic memory tag;  
      collecting a specimen from a donor in the specimen container; and  
      electronically storing information about the specimen, donor, and/or tests to be  
15       performed on the specimen on the electronic memory tag.

20       20. A method as claimed in claim 19 further including collecting and storing the  
electronic signature of the specimen donor on the electronic memory tag.

20       21. A method as claimed in claim 19 further including storing the results of the  
analytical tests performed on the specimen in the container on the electronic memory tag.

25       22. A method for managing the gathering of diagnostic and/or toxicology specimens  
from multiple specimen collection sites and the delivery of the collected specimens to a  
reference laboratory comprising:

collecting identity and test data for specimens and specimen donors at multiple collection sites;

entering the collected data into collection site computer databases;

transmitting the collected data from the collection site computer databases to a

5 computer at a reference laboratory by internet connections;

compiling and processing the transmitted data with the laboratory computer to generate a schedule and route for gathering the specimens from the specimen collection sites; and

10 gathering the specimens from the specimen collection sites according to the schedule and route and delivering the specimens to the reference laboratory.

23. A method as claimed in claim 22 wherein data collection includes reading information from electronic memory tags attached to containers containing the specimens by scanning the electronic memory tags with an electronic reader/scanner.

15 24. A method as claimed in claim 22 wherein data collection includes scanning bar codes imprinted on labels on the specimen containers.

20 25. A method as claimed in claim 22 wherein data collection includes entering data into a portable electronic recording device and data entry includes uploading the recorded information from the electronic recording device into a local computer at each specimen collection site.

26. A method as claimed in claim 22 wherein data collection includes collecting the electronic signatures of specimen donors and data entry includes entering the electronic signatures of the specimen donors into the local computer database.

5 27. A method for controlling the receipt, routing, and testing of diagnostic or toxicology specimens at an automated reference laboratory comprising:

delivering diagnostic and/or toxicology specimens to the automated reference laboratory which are contained in specimen containers having specimen and testing information stored on radio frequency memory tags affixed to the specimen containers;

10 scanning and reading the specimen and testing information from the electronic memory tags on the specimen containers with electronic scanners or readers and transmitting the information to a microprocessor for controlling the automated laboratory equipment; and

15 processing the read information with the microprocessor and using the processed information to control the sorting, routing, and analytical testing of the specimens by the automated laboratory equipment.

28. A method as claimed in claim 27 further including electronically writing the results of the analytical test or tests for each analyzed specimen to the electronic memory tag on the specimen container containing the corresponding analyzed specimen.

20 29. A method as claimed in claim 27 further including electronically storing the results of the analytical test or tests and the corresponding specimen identification data on a laboratory computer database.

30. A method as claimed in claim 29 further including printing the analytical test results and corresponding specimen identification data stored on the laboratory computer database to a written test results report.

5 31. A method as claimed in claim 29 further including transmitting the analytical test results data and corresponding specimen identification data stored on the laboratory computer database to the corresponding original specimen collection site by an internet connection.

32. A method for managing the collection, control, and testing of diagnostic and/or toxicology specimens and for managing the specimen and testing information associated with such specimens comprising:

10 providing encoded specimen containers having electronic memory tags with electronic specimen identification codes stored therein and having bar code labels imprinted with identifying bar codes;

15 correlating the electronic specimen identification code and identifying bar code for each encoded specimen container and storing the correlated codes on a central computer database;

supplying the encoded specimen containers to multiple specimen collection sites;

20 collecting specimens from specimen donors and placing the specimens in the encoded specimen containers at the specimen collection sites;

gathering data about the collected specimens, specimen donors, and prescribed specimen tests at the specimen collection sites, correlating the gathered data with the identifying bar codes on the corresponding specimen containers, and entering the gathered and correlated data into the central computer database;

transmitting the gathered and stored specimen, donor, and testing data and correlated identity codes from the central computer database to a laboratory computer database at an automated reference laboratory by an internet connection;

- processing the received data at the reference laboratory and defining a queue of  
5 specimens awaiting collection for delivery to the automated reference laboratory;

using the queue to define a schedule and route for collecting the specimens from the specimen collection sites for delivery to the automated reference laboratory;

gathering the specimens from the specimen collection sites according to the schedule and route and delivering the collected specimens to the automated reference laboratory;

- 10 electronically interrogating the electronic memory tags on the delivered specimen containers to detect the associated electronic identity codes and correlating the read data with the specimen data previously transmitted to the laboratory computer database;

automatically sorting the specimens for testing and establishing testing schedules using the correlated specimen and testing data in the laboratory computer database;

- 15 automatically routing and testing the specimens through the automated reference laboratory using the correlated specimen and testing data in the laboratory computer database;

electronically recording the test results on the laboratory computer database and correlating the results with the previously recorded specimen data; and

- 20 transmitting the recorded and correlated test result data to remote locations.

33. A method as claimed in claim 32 wherein the data gathering at the specimen collection sites includes scanning the bar codes on the specimen containers with an electronic recording device having a bar code scanner and data entry at the specimen collection sites



includes electronically uploading the bar code data and other recorded specimen data from the electronic recording device to the central computer database.

34. A method as claimed in claim 33 further including recording and uploading  
5 electronic signatures of the specimen donors using the electronic recording device.

35. A method as claimed in claim 32 wherein the routing and testing step at the automated reference laboratory includes the step of verifying the identity and required testing of each specimen prior to testing by interrogating the electronic memory tag on each  
10 specimen container for its electronic identity code and comparing the read code with the correlated specimen and prescribed testing requirements in the laboratory computer database.

36. A method as claimed in claim 32 wherein the transmission includes transmitting the test results data from the laboratory computer database to the associated specimen  
15 collection sites by an internet connection.

37. A method as claimed in claim 32 further including printing written test result reports and delivering the written test result reports to remote sites.

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